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10/071,645	02/06/2002	Bernard Bihain	92.US2.CIP	1680

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EXAMINER

LOCKARD, JON MCCLELLAND

ART UNIT PAPER NUMBER

1647

DATE MAILED: 05/04/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	<b>Application No.</b> 10/071,645	<b>Applicant(s)</b> BIHAIN ET AL.	
	<b>Examiner</b> Jon M. Lockard	<b>Art Unit</b> 1647	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) ☒ Responsive to communication(s) filed on 14 February 2005.
- 2a) ☒ This action is **FINAL**.                      2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) ☒ Claim(s) 14-46 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 14-46 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

- |                                                                                                                        |                                                                                         |
|------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)                                                       | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                                   | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____                                                |

## **DETAILED ACTION**

### ***Status of Application, Amendments, and/or Claims***

1. The Amendment filed 14 February 2005 has been received and entered in full. Claims 14, 19, and 20 have been amended and claims 21-46 have been added. Therefore, claims 14-46 are pending and claims 14-46 are the subject of this Office Action.

2. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

### ***Withdrawn Objections and/or Rejections***

3. Priority has been granted in view of Applicants submission of a Supplemental Application Data Sheet (filed 14 February 2005). The effective filing date of the Instant Application (10/071,645) is 07 August 2000.

4. The objection to the Specification as set forth at pages 4-5 (§§9-10) in the previous Office Action (mailed 10 August 2004) is withdrawn in view of Applicant's amendments (filed 14 February 2005).

5. The rejection of claims 14-20 under 35 U.S.C. §112 ¶2 as set forth at pages 5-6 (§13) in the previous Office Action (mailed 10 August 2004) is withdrawn in view of Applicant's amendment of claims to remove the recitation of "PAPAP" (filed 14 February 2005).

***Maintained Objections and/or Rejections***

***Claim Rejections - 35 USC § 112, 1<sup>st</sup> Paragraph (Enablement)***

6. Claims 14-20 remain and newly added claims 21-22, 24-31, and 34-46 are rejected under 35 U.S.C. 112, first paragraph, for reasons set forth in the previous Office Action (mailed 10 August 2004). The specification, while being enabling for SEQ ID NOs:1 and 3, in that they encode a protein set forth as SEQ ID NO:2 that binds g34872, does not reasonably provide enablement for polynucleotides which encode an amino acid sequence that is at least 70% identical to the amino acid sequence of SEQ ID NO:2 and binds to the polypeptide g34782 or variants thereof or fragments of at least 500 nucleotides thereof; polynucleotides which hybridizes under stringent conditions to a polynucleotide comprising the polynucleotide sequence of SEQ ID NO:1, SEQ ID NO:3 or variants thereof or fragments of at least 500 nucleotides thereof; polynucleotides which encode an amino acid sequence that is at least 75%, 80%, 85%, 90%, 95%, 98%, or 99% identical to the amino acid sequence of SEQ ID NO:2 and binds to the polypeptide g34782; polynucleotides that have at least 70%, 75%, 80%, 85%, 90%, or 95% nucleotide sequence identity with the nucleotide sequence of SEQ ID NO:3; polynucleotides that have at least 70%, 75%, 80%, 85%, 90%, or 95% nucleotide sequence identity with the nucleotide sequence of SEQ ID NO:3 that encode a polypeptide that binds to the polypeptide g34782, or polynucleotides that have at least 95%, 99%, 99.5%, or 99.8% nucleotide sequence identity with the nucleotide sequence of SEQ ID NO:1 that encode a polypeptide that binds to the polypeptide g34782. The specification does not enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or

Art Unit: 1647

use the invention commensurate in scope with these claims as set forth at pages 7-9 (16-23) in the previous Office Action (mailed 10 August 2004).

7. The Applicant traverses the rejection of claims 14-20 (the rejection now is being applied to presently added claims 21-22, 24-31, and 34-46) on the grounds that the specification discloses two nucleic acid sequences set forth as SEQ ID NO:1 and 3 which encode the polypeptide of SEQ ID NO:2, and a method of how to screen for PAPAP polypeptide (SEQ ID NO:2) variants having the biological activity as recited in the claims. The Applicant's arguments have been taken into consideration and are not found persuasive for the following reasons.

8. The specification's disclosure is insufficient to enable one skilled in the art to practice the invention as broadly claimed without undue experimentation. The factors listed below have been considered in the analysis of enablement:

- (A) The breadth of the claims;
- (B) The nature of the invention;
- (C) The state of the prior art;
- (D) The level of one of ordinary skill;
- (E) The level of predictability in the art;
- (F) The amount of direction provided by the inventor;
- (G) The existence of working examples; and
- (H) The quantity of experimentation needed to make or use the invention based on the content of the disclosure.

9. The claims are drawn to isolated polynucleotides that are a variant, fragment, analog, or derivative of the polynucleotide sequences set forth in SEQ ID NO:1 and SEQ ID NO:3. While the specification discloses that the protein set forth as SEQ ID NO:2, which is encoded by SEQ ID NOs:1 and 3, binds with the g34872 protein, the specification fails to describe other sequences or variants that encode proteins that are capable of binding the g34872 protein.

Art Unit: 1647

10. In the instant application, the enabled use and utility of SEQ ID NOs:1 and 3 is that they encode the PAPAP protein set forth in SEQ ID NO:2 which Applicants have shown to bind the g34872 protein, which has been implicated in schizophrenia. However, the disclosure has not shown (1) which portions of the protein encoded by SEQ ID NOs: 1 and 3 are critical for its interaction with g34872; (2) what modifications (e.g., mutations or truncations) one can make to SEQ ID NOs: 1 and 3 that will result in a protein that has the same binding property as the protein encoded by SEQ ID NOs: 1 and 3; and (3) any guidance on how to use variants of the polynucleotides set forth in SEQ ID NOs: 1 and 3 or the possible proteins encoded by them that do not bind g34872. While the Applicants have argued that the Specification teaches how to screen the large number of variants encompassed by the claims to identify those having the biological activity recited in the claims (See page 34, ¶3 of the response filed 14 February 2005), the requirement of 35 U.S.C. § 112(1) enablement is to “enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to *make and use*”, not *make and test*.

11. The state of the art is such that the relationship between the sequence of a protein and its activity is not well understood and unpredictable, and that certain positions in the sequence are critical to the protein's structure/function relationship. The problem of predicting protein structure from sequence data and in turn utilizing predicted structural determinations to ascertain functional aspects of the protein is extremely complex. While it is known that many amino acid substitutions are generally possible in any given protein the positions within the protein's sequence where such amino acid substitutions can be made with a reasonable expectation of success are limited. More importantly, certain positions in the sequence are critical to the protein's structure/function relationship, e.g. such as various sites or regions directly involved in

Art Unit: 1647

binding, activity and in providing the correct three-dimensional spatial orientation of binding and active sites. These or other regions may also be critical determinants of antigenicity. These regions can tolerate only relatively conservative substitutions or no substitutions [see Wells (1990) "Additivity of Mutational Effects in Proteins." Biochemistry **29**(37): 8509-8517; Ngo *et al.* (1995) "The Protein Folding Problem and Tertiary Structure Prediction, Chapter 14: Computational Complexity Protein Structure Prediction, and the Levinthal Paradox" pp. 492-495]. However, Applicant has provided little or no guidance beyond the mere presentation of sequence data to enable one of ordinary skill in the art to determine, without undue experimentation, the positions in the protein which are tolerant to change (e.g. such as by amino acid substitutions or deletions), and the nature and extent of changes that can be made in these positions. Although the specification outlines art-recognized procedures for producing and screening for active variants, this is not adequate guidance as to the nature of active derivatives that may be constructed, but is merely an invitation to the artisan to use the current invention as a starting point for further experimentation. Even if an active or binding site were identified in the specification, they may not be sufficient, as the ordinary artisan would immediately recognize that an active or binding site must assume the proper three-dimensional configuration to be active, which conformation is dependent upon surrounding residues; therefore substitution of non-essential residues can often destroy activity.

12. Due to the large quantity of experimentation necessary to generate the infinite number of derivatives recited in the claims and possibly screen same for activity, the lack of direction/guidance presented in the specification regarding which structural features are required in order to provide activity, the absence of working examples directed to same, the complex

Art Unit: 1647

nature of the invention, the state of the prior art which establishes the unpredictability of the effects of mutation on protein structure and function, and the breadth of the claims which fail to recite any structural limitations, undue experimentation would be required of the skilled artisan to make and/or use the claimed invention in its full scope.

13. It was found in Ex parte Maizel (27 USPQ2d 1662 at 1665) that:

Appellants have not chosen to claim the DNA by what it is but, rather, by what it does, i.e., encoding either a protein exhibiting certain characteristics, or a biologically functional equivalent thereof. Appellants' claims might be analogized to a single means claim of the type disparaged by the Court of Customs and Patent Appeals in *In re Hyatt*, 708F.2d 712, 218 USPQ 195 (Fed. Cir. 1983). The problem with the phrase "biologically functional equivalent thereof" is that it covers any conceivable means, i.e., cell or DNA, which achieves the stated biological result while the specification discloses, at most, only a specific DNA segment known to the inventor. Clearly the disclosure is not commensurate in scope with the claims."

***Claim Rejections - 35 USC § 112, 1<sup>st</sup> Paragraph (Written Description)***

14. Claims 14-20 remain and newly added claims 21-22, 24-31, and 34-46 are rejected under 35 U.S.C. 112, first paragraph, as containing subject matter which was not described in the Specification in such a way as to reasonably convey to one skilled in the art that the inventor(s), at the time the application was filed, had possession of the claimed invention for reasons set forth in the previous Office Action (mailed 10 August 2004).

15. The Specification discloses polynucleotides set forth as SEQ ID NOs:1 and 3 that encode the polypeptide of SEQ ID NO:3. However, the claims also recite polynucleotides which encode an amino acid sequence that is at least 70% identical to the amino acid sequence of SEQ ID NO:2 and binds to the polypeptide g34782 or variants thereof or fragments of at least 500 nucleotides thereof; polynucleotides which hybridizes under stringent conditions to a polynucleotide comprising the polynucleotide sequence of SEQ ID NO:1, SEQ ID NO:3 or



Art Unit: 1647

variants thereof or fragments of at least 500 nucleotides thereof; polynucleotides which encode an amino acid sequence that is at least 75%, 80%, 85%, 90%, 95%, 98%, or 99% identical to the amino acid sequence of SEQ ID NO:2 and binds to the polypeptide g34782; polynucleotides that have at least 70%, 75%, 80%, 85%, 90%, or 95% nucleotide sequence identity with the nucleotide sequence of SEQ ID NO:3; polynucleotides that have at least 70%, 75%, 80%, 85%, 90%, or 95% nucleotide sequence identity with the nucleotide sequence of SEQ ID NO:3 that encode a polypeptide that binds to the polypeptide g34782, or polynucleotides that have at least 95%, 99%, 99.5%, or 99.8% nucleotide sequence identity with the nucleotide sequence of SEQ ID NO:1 that encode a polypeptide that binds to the polypeptide g34782. Thus, the claims are drawn to a genus of DNA molecules.

16. The Applicant traverses the rejection of claims 14-20 (the rejection now is being applied to presently added claims 21-22, 24-31, and 34-46) on the grounds that relevant sections of the PTO's M.P.E.P. (§2163.II.A.3.a.ii) and case law (In re Wallach, 71 USPQ2d 1939, 1942 Fed. Cir 2004) state, for example, if an applicant disclosed on amino acid sequence, it would be unnecessary to provide an explicit disclosure of nucleic acid sequence that encoded the amino acid sequences. The Applicant's arguments have been taken into consideration and are not found persuasive for the following reasons.

17. While the Examiner agrees that it is unnecessary to provide an explicit disclosure of the entire genus of nucleic acid sequence that encode a single amino acid sequence, it is noted that the instant claims are not drawn to a genus of nucleic acids that encode a single amino acid. The instant claims are drawn very broadly to a genus of DNA molecules that include polynucleotides which encode an amino acid sequence that is at least 70% identical to the amino acid sequence of

Art Unit: 1647

SEQ ID NO:2 and binds to the polypeptide g34782 or variants thereof or fragments of at least 500 nucleotides thereof; polynucleotides which hybridizes under stringent conditions to a polynucleotide comprising the polynucleotide sequence of SEQ ID NO:1, SEQ ID NO:3 or variants thereof or fragments of at least 500 nucleotides thereof; polynucleotides which encode an amino acid sequence that is at least 75%, 80%, 85%, 90%, 95%, 98%, or 99% identical to the amino acid sequence of SEQ ID NO:2 and binds to the polypeptide g34782; polynucleotides that have at least 70%, 75%, 80%, 85%, 90%, or 95% nucleotide sequence identity with the nucleotide sequence of SEQ ID NO:3; polynucleotides that have at least 70%, 75%, 80%, 85%, 90%, or 95% nucleotide sequence identity with the nucleotide sequence of SEQ ID NO:3 that encode a polypeptide that binds to the polypeptide g34782, or polynucleotides that have at least 95%, 99%, 99.5%, or 99.8% nucleotide sequence identity with the nucleotide sequence of SEQ ID NO:1 that encode a polypeptide that binds to the polypeptide g34782.

18. To provide adequate written description and evidence of possession of a claimed genus, the specification must provide sufficient distinguishing identifying characteristics of the genus. The factors to be considered include disclosure of complete or partial structure, physical and/or chemical properties, functional characteristics, structure/function correlation, methods of making the claimed product, and any combination thereof. In this case, the only factor present in claim 14(c) is a mere chemical property of the DNA in the form of a recitation of hybridizes under stringent conditions to the polynucleotides set forth as SEQ ID NOs:1 and 3, as well as variants (part (d)) and fragments thereof which are at least 500 contiguous nucleotides (part (e)). The specification does not identify any particular structure/function correlation or biological activity. The distinguishing characteristics of the claimed genus are not described. The only adequately

Art Unit: 1647

described species are the nucleic acid sequences represented by SEQ ID NOs:1 and 3 and the polypeptide encoded by SEQ ID NOs:1 and 3 set forth as SEQ ID NO:2. Accordingly, the specification does not provide adequate written description of the claimed genus.

19. *Vas-Cath Inc. v. Mahurkar*, 19USPQ2d 1111, clearly states that “applicant must convey with reasonable clarity to those skilled in the art that, as of the filing date sought, he or she was in possession of *the invention*. The invention is, for purposes of the ‘written description’ inquiry, *whatever is now claimed*.” (See page 1117.) The specification does not “clearly allow persons of ordinary skill in the art to recognize that [he or she] invented what is claimed.” (See *Vas-Cath* at page 1116).

20. With the exception of the sequences referred to above, the skilled artisan cannot envision the detailed chemical structure of the encompassed polypeptides and DNA molecules, and therefore conception is not achieved until reduction to practice has occurred, regardless of the complexity or simplicity of the method of isolation. Adequate written description requires more than a mere statement that it is part of the invention and reference to a potential method of isolating it. The nucleic acid itself is required. See *Fiers v. Revel*, 25 USPQ2d 1601 at 1606 (CAFC 1993) and *Amgen Inc. v. Chugai Pharmaceutical Co. Ltd.*, 18 USPQ2d 1016.

21. One cannot describe what one has not conceived. See *Fiddes v. Baird*, 30 USPQ2d 1481 at 1483. In *Fiddes*, claims directed to mammalian FGF’s were found to be unpatentable due to lack of written description for that broad class. The specification provided only the bovine sequence.

22. Therefore, only the polynucleotides of SEQ ID NOs:1 and 3, but not the full breadth of the claims meet the written description provision of 35 U.S.C. §112, first paragraph. Applicant

Art Unit: 1647

is reminded that *Vas-Cath* makes clear that the written description provision of 35 U.S.C. §112 is severable from its enablement provision (see page 1115).

***Claim Rejections - 35 USC § 112, 2<sup>nd</sup> Paragraph***

23. Claims 14-20 remain, and newly added claims 21-46 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention for reasons set forth in the previous Office Action (mailed 10 August 2004).

24. Claims 14 and 36 are rejected as being indefinite as there is no limiting definition of stringent hybridization conditions in the Specification, and the metes and bounds of that which will hybridize are dependent upon the conditions under which the hybridization is performed.

25. The Applicants traverse the rejection of claims 14-20 (the rejection now is being applied to presently added claims 21-46) on the grounds that the specification at paragraphs 82-87 of the published application (US 2003/0148389 A1) defines stringent hybridization conditions, including temperatures at which hybridizations, under stringent conditions, are to be carried out, buffers, and wash steps.

26. The Applicant's arguments have been taken into consideration and are not found persuasive for the following reasons. The discussion of hybridization conditions at page 26 of the Specification as originally filed discloses that the washing steps are carried out "preferably at 65°C" (See page 26, lines 7-9) and that "suitable hybridization conditions may for example be adapted according to the teachings disclosed in the book of Hames and Higgins (1985)" (See page 26, lines 13-15). Therefore, the discussion of stringent conditions in the Specification is

Art Unit: 1647

exemplary rather than limiting, fails to breathe life and meaning into the term and thus is insufficient to render the claims definite.

27. Claim 14 is further indefinite as the term “variant”, as recited in part (d) of then claim is a relative term which renders the claim indefinite.

28. The Applicants traverse the rejection of claims 14-20 (the rejection now is being applied to presently added claims 21-46) on the grounds that the specification at paragraph 60 of the published application (US 2003/0148389 A1) provides adequate teachings with respect to the term “variant”.

29. The Applicant’s arguments have been taken into consideration and are not found persuasive for the following reasons. The discussion of “variants” at paragraph 60 of the published application (US 2003/0148389 A1) is noted but vague, is exemplary rather than limiting, and thus fails to breathe life and meaning into the term. Since the Specification does not provide a standard for ascertaining the requisite degree a polynucleotide can differ from the reference polynucleotide and still be considered a “variant” and not a completely different sequence, one of ordinary skill in the art would not be reasonably apprised of the scope of the invention.

30. Claims 37-40 are indefinite for reciting “a polynucleotide of SEQ ID NO:1” in line 2 of the claim. Without knowing whether the indefinite article “a” is intended to mean “the polynucleotide of SEQ ID NO:1” or any portion of the nucleotide sequence set forth as SEQ ID NO:1, for example, the metes and bounds of the claims cannot be determined.

31. Claims 15-20, 21-35, and 41-46 are rejected for depending from an indefinite claim.

*Claim Rejections - 35 USC § 102*

32. Claims 14-20 remain rejected under 35 U.S.C. 102(e) as being clearly anticipated by Kaser et al (U.S. Pat. No. 6,222,027; priority date 17 May 1999) for reasons set forth in the previous Office Action (mailed 10 August 2004).

33. The Applicants traverse the rejection of claims 14-20 on the grounds that the polynucleotide taught by Kaser et al., which shares 100% sequence identity to nucleotides 685-1058 SEQ ID NO:1, is not at least 500 contiguous nucleotides in length.

34. The Applicant's arguments have been taken into consideration and are not found persuasive for the following reasons. The only limitation present in part (c) of claim 14 is a polynucleotide which hybridizes under stringent conditions to the polynucleotide of SEQ ID NO:1, SEQ ID NO:3, or the complement thereof. Accordingly, the polynucleotide of Kaser et al. meets all the limitations of part (c) of claim 14. Furthermore, the Examiner has interpreted part (e) of claim 14 to read on any polynucleotide fragment which is at least 500 nucleotides in length.

35. Kaser et al. teach a nucleic acid that is expressed in the hippocampus. The nucleic acid taught by Kaser consists of 1581 contiguous nucleotides that shares 100% sequence similarity to nucleotides 685-1058 of SEQ ID NO:1 which would hybridize to SEQ ID NO:1 under stringent conditions. Kaser et al. also teach the nucleic acid further comprising a label (See column 10, lines 49-54), bound to a solid support for use in microarrays (See column 5, lines 59-60), a vector and host cell comprising the nucleic acid (See column 8, lines 29-56), as well as methods

Art Unit: 1647

of producing the protein and recovering the protein that is produced by the host cell (See column 9, lines 4-12). Thus, the reference of Kaser et al. meets all the limitations of claims 14-20.

*Summary*

36. No claim is allowed.

*Allowable Subject Matter*

37. Claims 23 and 32-33 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

38. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office Action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the mailing date of this final action.

Art Unit: 1647

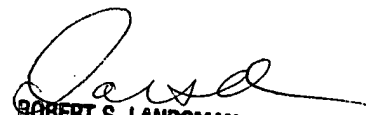
*Conclusion*

Any inquiry concerning this communication or earlier communications from the examiner should be directed to **Jon M. Lockard, Ph.D.** whose telephone number is (571) 272-2717. The examiner can normally be reached on Monday through Friday, 8:00 AM to 6:00 PM. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, **Brenda Brumback**, can be reached on (571) 272-0961.

The fax number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

JML  
April 22, 2005

  
ROBERT S. LANDSMAN, PH.D.  
PRIMARY EXAMINER